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ABSTRACT

This report describes a staff training and performance monitoring system for elementary school teachers, teacher aides, and parent aides participating in the Behavior Analysis Follow Through (B.A.) compensatory education program. The B.A. model involves the use of additional staff, individualized instruction, programmed curriculum materials, and a token motivation system. The steps involved in the training-monitoring sequence are: (1) providing a rationale for desired performance, (2) modeling of the described behavior, and (3) providing the trainee with adequate verbal feedback and praise. Demonstration and training classes, as well as training manuals are provided for the training period. Trainers establish a schedule of classroom monitoring to assure continuing maintenance of program objectives. Data are presented which indicate that: (1) the staff training procedures are successful, (2) student performance convaries with relative adherance to the classroom model, (3) the instructional model is replicated across project sites and grade levels, and (4) the teacher training and support system are acceptable to school personnel. (Author/BRT)

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Monitoring Staff Performance:

A Plan for Quality Control in Project Follow Through[1,2]

Donald A. Jackson and Don Bushell, Jr.

University of Kansas

PS 008497

Presented at the Meeting of the American Psychological Association,

Chicago, September, 1975.

Abstract

To have a wide-spread impact, an education program must use standard and economical procedures for staff training and performance monitoring. Accordingly, the Behavior Analysis Follow Through program established a training/monitoring system to assure quality performance in each elementary school classroom using the Behavior Analysis model. The steps involved in staff training and subsequent support of quality performance are described. Data are presented indicating that the staff training procedures are successful, that student performance covaries with relative adherence to the instructional model, that the instructional model is replicated across project sites and grade levels, and that the teacher training and support system are acceptable to school personnel.

Monitoring Staff Performance

A Plan for Quality Control in Project Follow Through

Behavior Analysis Follow Through (B.A.), a comprehensive classroom instructional model sponsored by the Department of Human Development at the University of Kansas, has been successful at improving the academic performance of thousands of poor children who, on an actuarial basis, were expected to fail in school. In hundreds of Behavior Analysis classrooms scattered throughout the nation in a variety of communities and school settings (see Table 1), children in kindergarten through third grade are successfully meeting grade-level norms (Abt & Associates, 1973; Bushell, in press).

Insert Table 1 about here

A social intervention as massive as Behavior Analysis faces unprecedented problems in implementing and maintaining the program model in all of its remote sites. In such large-scale applications, standard and economical procedures for assuring quality performance in each site become essential. This paper describes the basic staff training and performance monitoring system used in the Behavior Analysis program to assure adequate implementation in all classrooms. Data are presented which indicate that the staff training procedures successfully modified teacher behavior,

that student performance covaried with the relative adherence to the classroom model, that the instructional model was replicated across project sites, and that the teacher training methods were acceptable to school personnel.

The basic B.A. model includes an expanded classroom staffing pattern, individualized instruction, programmed curriculum materials, and a token motivation system. (Also see Bushell, 1973; Bushell & Ramp, 1974.) A careful specification of all of the critical elements of the model provided the foundation for building the teacher training and performance monitoring system.

Once the program model had been specified, the first step in building the training/monitoring system was to find a way of providing immediate feedback on the academic performance of each child each week. The availability of high-speed computerized data transmission and processing made it possible for each teacher to receive rapid feedback on each child's progress toward individually prescribed curriculum targets. With this basic monitoring system working, the next step was to devise an effective means of training people to use the teaching methods, and once trained, of assuring their continued use with minimum supervision. The problem demanded a procedure that would assure the replication of the program model in all B.A. sites with minimum supervision from the University of Kansas.

The basic package for training the classroom staff (teachers, teacher aides, and parent aides) begins with several lists of teaching performance and outcome criteria, which specify critical instructional methods as well as form the basis for public recognition of good teaching performance.

One set of performance criteria is to be met in the classroom instructional situation. Figure 1 lists the Instructional Teaching Criteria. Observations made by a staff trainer or parent trainer

Insert Figure 1 about here

must yield data that support a "yes" answer to each of the items shown. Teaching behaviors as well as the child's on-task and accuracy are checked.

A second set of performance criteria is used to evaluate the operation of the classroom motivation system. Figure 2 shows the

Insert Figure 2 about here

Exchange Teaching Criteria. If observations support "yes" answers to each item on this list, the trainer can be assured that the token motivation system is functioning properly.

The final performance criteria requires that, for a period of four weeks, 80% of the children in the teacher's own instructional

groups be reported as having met their individualized progress targets, as specified by the computer feedback system.

If two observations, taken at least four weeks apart, both show that the teacher or aide has met all of the criteria and is maintaining at least 80% of her children "on target", this performance is acknowledged with a Behavior Analysis specialist certificate and a letter of commendation. Copies of the letter go to the principal and to the local Board of Education office for placement in the teacher's personnel file. This certification procedure is repeated yearly. Thus, progress toward B.A. certification might be used as an indication of the degree of adherence to the model in each of the B.A. sites.

To train the classroom staff to meet these criteria, each Behavior Analysis project site employs its own trainers. Most projects also operate demonstration and training classes for providing intensive individualized practicum experience for new staff. In addition, training manuals written specifically for the B.A. trainers describe training and observation procedures in detail (Nelson, Saudargas, & Jackson, 1974; Jackson, Minnis-Hazel, & Saudargas, 1974).

The staff training manuals specify a general three-step training process used both in the training of new teachers and the monitoring of and follow up with experienced teachers. These steps

are: (a) giving a rationale for the desired performance, describing those behaviors, and setting a criterion (such as always using words of praise that describe the behavior being praised); (b) modeling the desired behavior(s) and then having the trainee try it/them; and (c) providing the trainee with graphic feedback, verbal feedback and praise. The effectiveness of these procedures is supported in other research reports (e.g., Holt, Kolb, Bushell, & Jackson, 1974; Sabbert, Holt, & Jackson, 1975; Nelson, Jackson, Hughes, & Jenkins, 1975; Cooper, Thomson, & Baer, 1974; Clark, Macrea, Ida & Smith, 1975). For example, the results of the Holt et al.(1974) study showed that a training procedure consisting of instructions, modeling, and graphic and verbal feedback increased six trainees' rate of teacher contacts to on-task children (Fig. 3), and the percentage of tokens delivered along with a descriptive praise statement (Fig. 4) in a preschool classroom which was using the B.A. instructional model.

Insert Figures 3 and 4 about here

After initial training has been completed, the trainer will establish a regular schedule of monitoring observations. Immediately following each classroom observation, praise and specific feedback are given to the teacher. Later, the trainer will record the re-

sults of the observation on summary sheets in a notebook, providing the trainer with a continuous picture and permanent record of the performance of every teacher. Thus, these regular performance checks assure that each teacher and aide continue to receive the feedback and assistance that began with the B.A. certification procedures.

The final step in the training/monitoring sequence is the regular evaluation provided by an external consultant, who is a professional behavior analyst, called the District Advisor (D.A.). The D.A. is the representative of the University of Kansas Support and Development Center for Project Follow Through, the originator of the B.A. model. The D.A. uses the telephone, the mails, and monthly visits to a site to monitor the performance of the children in each classroom and to insure that the local project staff are receiving appropriate in-service support and technical training.

While the training package has been shown to be effective in modifying teacher behavior, a more important demonstration, and a more difficult one, is to show the effects of the training/monitoring program on the children. The following four figures present an internal evaluation within the B.A. program that suggests what these effects are.

Insert Figure 5 about here

Figure 5 shows the percentage of first, second, and third graders in one B.A. project site who were meeting their individualized curriculum progress targets during three periods of the school year. The cross-hatched bars indicate the performance of children in seven classrooms whose teachers met the B.A. certification criteria, and the open bars represent the performance of children in the remaining eight classrooms where the teachers did not meet the certification criteria. The graph shows that not only was the performance of the children with certified teachers better throughout the year, but also that this performance was maintained following the use of the teacher certification procedures.

The relevance of the B.A. teaching criteria to student performance is further supported by indications that children taught by teachers meeting all of the B.A. criteria perform better on yearly achievement tests. For example, Figure 6 shows that in one B.A.

Insert Figure 6 about here

site the mean grade level score for the reading portion of the Wide Range Achievement Test was four months higher for first graders with B.A. certified teachers than the mean score for first graders in this site with non-certified teachers, even though both groups were above the expected grade level performance. In another site,

where another certified vs. non-certified performance comparison was possible, second graders performed an average of eight months

Insert Figure 7 about here

better when instructed by teachers meeting all of the B.A. certification criteria (see Fig. 7), and third graders with certified teachers were nine months ahead of children with non-certified teachers (see Fig. 8).

Insert Figure 8 about here

Given that the quality control (B.A. certification) criteria seem to be related to student performance, it is important to ask how successfully the program package has been implemented each time it's applied. To this end, independent evaluators from the Stanford Research Institute (SRI) examined adherence to specific program objectives in five of the twelve Behavior Analysis project sites (Stallings & Kaskowitz, 1974). Using an interval measurement scale, 35 classrooms were observed in all. The resulting data, summarized as a ranking from 1 to 5 where 5 indicated the most adherence to the model, provide measures of how well the B.A. model procedures were being implemented in the classrooms observed

by SRI. (Although a complete description of the observation and reliability procedures used is not possible here, they are reported in detail in the SRI report referenced above.) Thus, for example, on the SRI measure of adult feedback and praise given for individual child academic responses (Table 2), 17 (94%) of the 18 first grade classes and 12 (71%) of the 17 third grade classes in the sample received the highest ranking on this particular variable.

Insert Table 2 about here

Similar effects were reported by SRI for the percent of time instruction takes place in small ungraded groups (Table 3), the percent of time spent in reading instruction (Table 4), and the degree of one-to-one adult-child interacting found in B.A. classrooms (Table 5).

Insert Tables 3, 4, and 5 about here

Although convincing demonstrations of "effect" are certainly crucial to the survival of a compensatory education program, equally important to its survival is the social acceptability of the methods that were used in achieving the effects. Responses given on yearly satisfaction surveys conducted by B.A. appear to indicate that,

by and large, the training methods are acceptable to those with whom they are used. The bar graph in Figure 9 indicates that, on a scale of 1 - 7, the mean rating given to the training program by all B.A. teachers and aides in Spring, 1975 was 6.0, or

Insert Figure 9 about here

"satisfied." Also rated was the satisfaction of school personnel with the services provided by the District Advisor or other agents from the University of Kansas Support and Development Center for Project Follow Through. Although these ratings are somewhat lower, Figure 10 indicates that the groups sampled generally were satisfied

Insert Figure 10 about here

with these support services. In yet another portion of the satisfaction survey, all program consumers (with the exception of non-Follow Through teachers) appear to be happy with the Behavior Analysis classroom methods. Figure 11 reports these data.

Insert Figure 11 about here

The importance and relative impact of a social intervention strategy might best be evaluated along four dimensions: the degree

of success in staff training, related improvements in childrens' performance, successful replication of the program model in a variety of settings, and adequate client satisfaction with the program. The results presented here suggest that the Behavior Analysis training/monitoring system successfully trains teacher behaviors, that student performance covaries with relative adherence to the instructional model, that classroom teaching procedures can be replicated across sites, and that the training and classroom procedures are generally acceptable to program consumers. Current efforts are directed towards a finer examination of the components of the training and monitoring system with the goal of determining the procedures essential to program maintenance.

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Footnotes

[1]The preparation of this manuscript was supported by Grant nos. OEG-0-8-522422-4433 and G-00750226 from the U.S. Office of Education, Department of Health, Education and Welfare to the University of Kansas Support and Development Center for Follow Through. However, the opinions expressed herein do not necessarily reflect the position or policy of the U.S. Office of Education, and no official endorsement by the U.S. Office of Education should be inferred.

[2]The procedures and data discussed in this paper reflect the work of many members of the Behavior Analysis staff at the University of Kansas and in the Behavior Analysis project sites. The authors gratefully acknowledge these people, especially Ms. Annabelle Nelson for her extensive work on developing the procedures described, Dr. Richard Saudargas for his considerable influence on the design of the procedures and the analysis of student progress data, Ms. Jill Becker for her compilation of data. The authors also acknowledge the extensive contribution made by Dr. Emily Herbert-Jackson on the final version of this manuscript and the generous assistance of Drs. Dan Green, Eugene Ramp, and Lynn Weis on the preparation of an earlier draft of this paper.

Table 1

BEHAVIOR ANALYSIS
FOLLOW THROUGH PROJECTS IN OPERATION
1974-75

LOCATION	SCHOOLS	CLASSES (K-3)	CHILDREN
*BRONX	2	19	687
*HOPI RESERVATION, ARIZONA	5	15	221
INDIANAPOLIS, INDIANA	4	16	439
KANSAS CITY, MISSOURI	3	24	693
LOUISVILLE, KENTUCKY	4	32	937
MERIDIAN, ILLINOIS	3	16	427
NORTHERN CHEYENNE, MONTANA	3	20	441
PITTSFIELD, MASSACHUSETTS	2	8	186
*PHILADELPHIA, PENNSYLVANIA	3	48	1,581
*PORTAGEVILLE, MISSOURI	1	16	449
*TRENTON, NEW JERSEY	8	36	896
WAUKEGAN, ILLINOIS	1	21	534
TOTALS	39	270	7,491

**Program initiated in the fall of 1968. All other programs initiated in the fall of 1969.*

Table 2

ADULT FEEDBACK TO CHILD RESPONSE TO ADULT ACADEMIC COMMANDS, REQUESTS, OR DIRECT QUESTIONS (Variable 412a)--UNIVERSITY OF KANSAS

	First Grade Classrooms with Implementation Scores of					Third Grade Classrooms with Implementation Scores of				
Sites	1	2	3	4	5	1	2	3	4	5
NYC P.S. 77X					2				1	1
Philadelphia VI, Pa.				1	3				2	2
Portageville, Mo.					4		1	1		1
Kansas City, Mo.					4					4
Louisville, Ky.					4					4
Total Classrooms				1	17		1	1	3	12
Percent of classrooms				6	94%		6%	6%	18%	71%

Note. From Stallings, J. A., & Kaskowitz, D. H. Follow Through classroom observation evaluation 1972-1973 (SRI Project URU-7370). Menlo Park, California: Stanford Research Institute, August 1974.

Table 3

TEACHER WITH SMALL GROUP (Variable 88)--UNIVERSITY OF KANSAS

	First Grade Classrooms with Implementation Scores of					Third Grade Classrooms with Implementation Scores of				
Sites	1	2	3	4	5	1	2	3	4	5
NYC P. S. 77X				1	1					2
Philadelphis VI, Pa.				3	1			1	1	2
Portageville, Mo.					4		1			2
Kansas City, Mo.				1	3					4
Louisville, Ky.					4					4
Total classrooms				5	13		1	1	1	14
Percent of classrooms				28%	72%		6%	6%	6%	82%

Note. From Stallings, J. A., & Kaskowitz, D. H. Follow Through classroom observation evaluation 1972-1973 (SRI Project URU-7370). Menlo Park, California: Stanford Research Institute, August 1974.

Table 4

READING, ALPHABET, LANGUAGE DEVELOPMENT (Variable 67)--

UNIVERSITY OF KANSAS

Sites	First Grade Classrooms with Implementation Scores of					Third Grade Classrooms with Implementation Scores of				
	1	2	3	4	5	1	2	3	4	5
NYC P.S. 77X		1			1				1	1
Philadelphia, VI, Pa.	1			1	2			1	1	2
Portageville, Mo.					4			1	2	
Kansas City, Mo.		1	1	1	1		1		1	2
Louisville, Ky.					4					4
Total Classrooms	1	2	1	2	12		1	2	5	9
Percent of classrooms	6%	11%	6%	11%	67%		6%	12%	29%	53%

Note. From Stallings, J. A., & Kaskowitz, D. H. Follow Through classroom observation evaluation 1972-1973 (SRI Project URU-7370). Menlo Park, California: Stanford Research Institute, August 1974.

Table 5

ADULT COMMUNICATION OR ATTENTION FOCUS, ONE CHILD

(Variable 438a)--UNIVERSITY OF KANSAS

Sites	First Grade Classrooms with Implementation Scores of					Third Grade Classrooms with Implementation Scores of				
	1	2	3	4	5	1	2	3	4	5
NYC P.S. 77X				1	1					2
Philadelphia VI, Pa.				2	2		1		1	2
Portageville, Mo.					4					3
Kansas City, Mo.		2		1	1					4
Louisville, Ky.					4					4
Total classrooms		2		4	12		1		1	15
Percent of classrooms		11%		22%	67%		6%		6%	88%

Note. From Stallings, J. A., & Kaskowitz, D. H. Follow Through classroom observation evaluation 1972-1973 (SRI Project URU-7370). Menlo Park, California: Stanford Research Institute, August 1974.

Figure Captions

Figure 1. The first set of criteria that must be met by a teacher or aide to qualify for Behavior Analysis certification are the Instructional Teaching Criteria.

Figure 2. The second set of performance criteria, the Exchange Teaching Criteria, are used to evaluate the operation of the classroom motivation system.

Figure 3. When training consisting of setting a criterion, modeling by the trainer, and graphic and verbal feedback were employed, the rate of contacts made to on-task children improved. The results were replicated with six trainees.

Figure 4. Setting a criterion, modeling, and feedback were used together to improve the use of descriptive praise with tokens. The data show that following training, about 75% of all tokens were accompanied by a verbal statement clearly stating to the child what the token was being given for.

Figure 5. A preliminary analysis of the effects of the certification program are shown. Children in classrooms whose teachers were certified completed more work than children in classrooms with teachers that did not meet the certification criteria. The performance of children taught by certified teachers maintained after certification had been granted.

Figure 6. First grade children with teachers who had met all of the B.A. certification criteria performed an average of four months higher on a year-end achievement test than children in the same site and grade level, but with teachers who did not meet all of the criteria. The scores of 74 percent of the children with certified teachers were at or above the expected grade level whereas 69 percent of the children with noncertified teachers scored at the expected level.

Figure 7. The average score on a year-end test of reading was 3.3 for second grade children instructed by teachers meeting all of the B.A. criteria, and 2.5 for children instructed by teachers not meeting all of the criteria, a difference of eight months. Sixty-seven percent of the children with certified teachers scored at or above the expected grade level on the test, whereas only 40 percent of the children with noncertified teachers scored at least at grade level.

Figure 8. In grade three, the average achievement test score was 4.2 for children with certified teachers and 3.3 for children with teachers not meeting all of the criteria, a difference of nine months. Forty-six percent of the children with certified teachers were at or above grade level, whereas only 36 percent of the children with teachers not meeting all of the criteria were at least at grade level on the test.

Figure 9. The mean rating given to the B.A. training program by teachers and aides was 6.0 in Spring, 1975.

Figure 10. The bar graphs show the satisfaction ratings given to the sponsor by local project personnel in all of the B.A. sites.

Figure 11. The bar graphs indicate the acceptability of the B.A. classroom methods as rated by school district personnel in all of the B.A. sites.

Figure 1

Instructional Teaching Criteria

These criteria must be met based on at least two 10-minute observations separated by at least four weeks:

1. 80% of the children are on-task.
2. 100% of your contacts are to children who are on-task.
3. 100% of your contacts contain praise.
4. 100% tokens given out are paired with praise. (Does not apply to classrooms using contingency contracting.)
5. 90% of your contacts that include prompts also contain descriptive praise and tokens. (Tokens do not apply to classrooms using contingency contracting.)
6. None of your contacts are disapprovals.
7. Time-out procedures, if needed, are used appropriately. (See Don Bushell, Jr., Classroom Behavior, pp. 75-78.)
8. Four children in your group, picked at random, are working at 80% accuracy. (The staff trainer will check the work of four students.)

Figure 2

Exchange Teaching Criteria

These criteria must also be met on two observations separated by at least four weeks:

1. Back-ups are prepared and ready prior to the start of the instructional period.
2. Prices and content of the back-ups vary at two exchanges observed on the same day.
3. Each instructional group sets own prices.
4. Prices are the same for all children within each group.
5. Children are free to choose any activity for which they have enough tokens. (Does not apply to classes using contingency contracting.)
6. Children with too few tokens sit quietly during the exchange. (In contracting classrooms, children who do not complete their contracts sit quietly.)
7. The first child in a group who is ready to exchange is allowed to do so, without waiting for the other children to get ready.
8. At least one back-up contributes to a relevant academic skill.
9. Adults participate in the back-up activities.
10. Teachers give praise for appropriate play during exchanges.
11. At the end of the exchange, instruction begins with the first child who comes to the table.

Figure 3

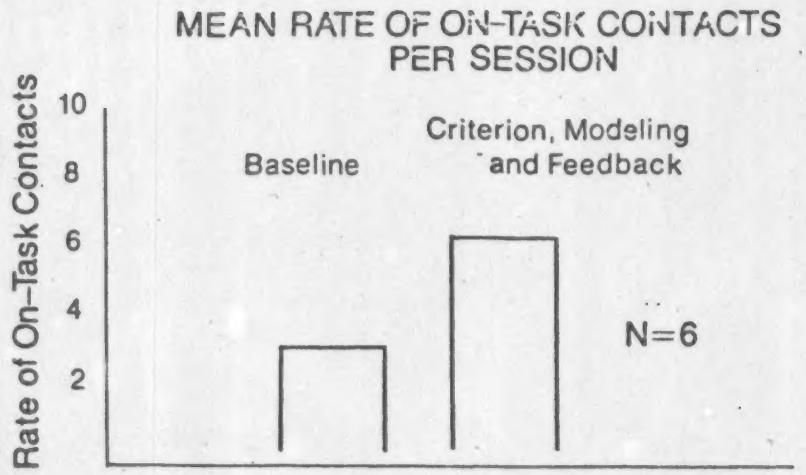
MEAN RATE OF ON-TASK CONTACTS
PER SESSION
Rate of On-Task Contacts
10
8
6
4
2
Baseline
Criterion, Modeling
and Feedback
N=6

Figure 4

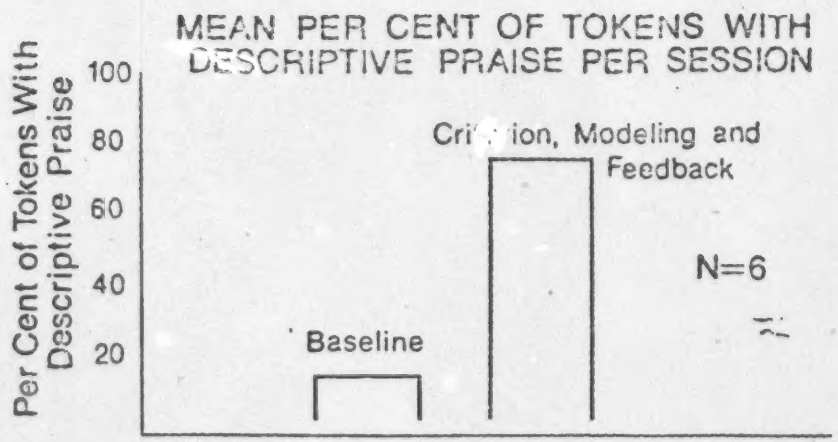
MEAN PER CENT OF TOKENS WITH DESCRIPTIVE PRAISE PER SESSION
Per Cent of Tokens With Descriptive Praise
100
80
60
40
20
Criterion, Modeling and Feedback
N=6
Baseline

Figure 5

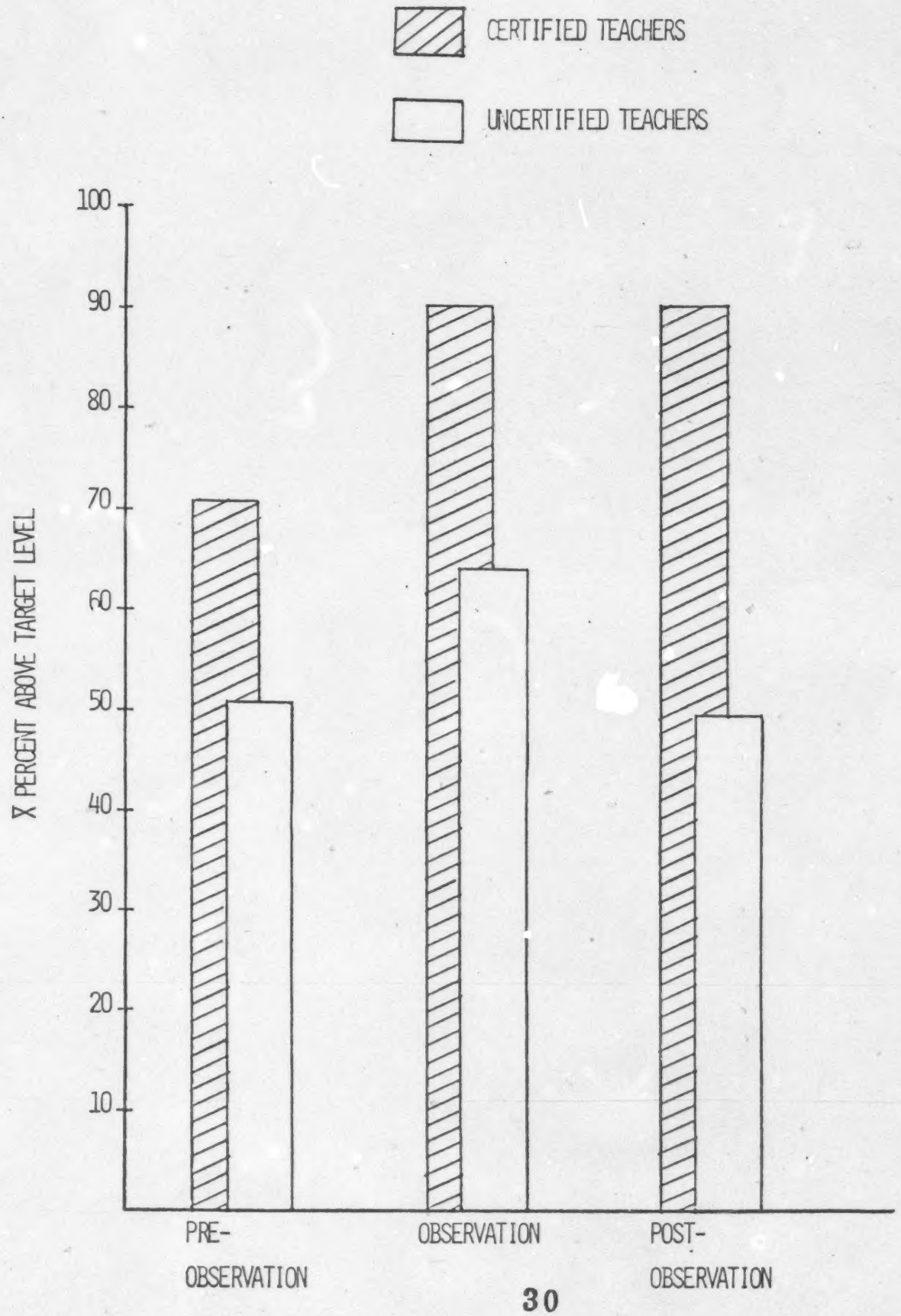
CERTIFIED TEACHERS
UNCERTIFIED TEACHERS
100
90
80
70
60
50
40
30
20
10
X PERCENT ABOVE TARGET LEVEL
PRE-
OBSERVATION
OBSERVATION
POST-
OBSERVATION

Figure 6

SPRING, 1975 POSTTESTING

MOUNDS, ILLINOIS

GRADE 1

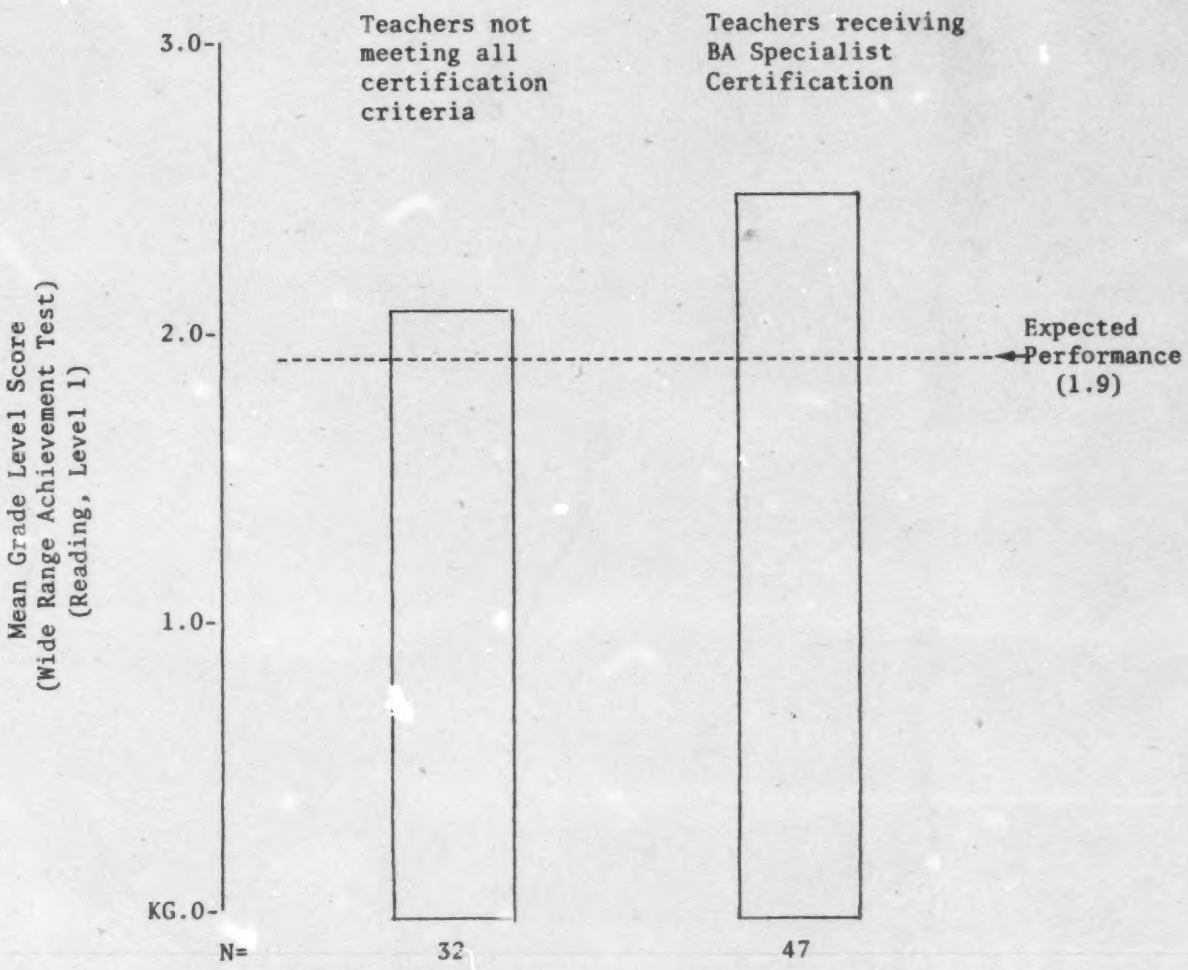

Figure 7

SPRING, 1975 POSTTESTING

BRONX, NEW YORK

GRADE 2

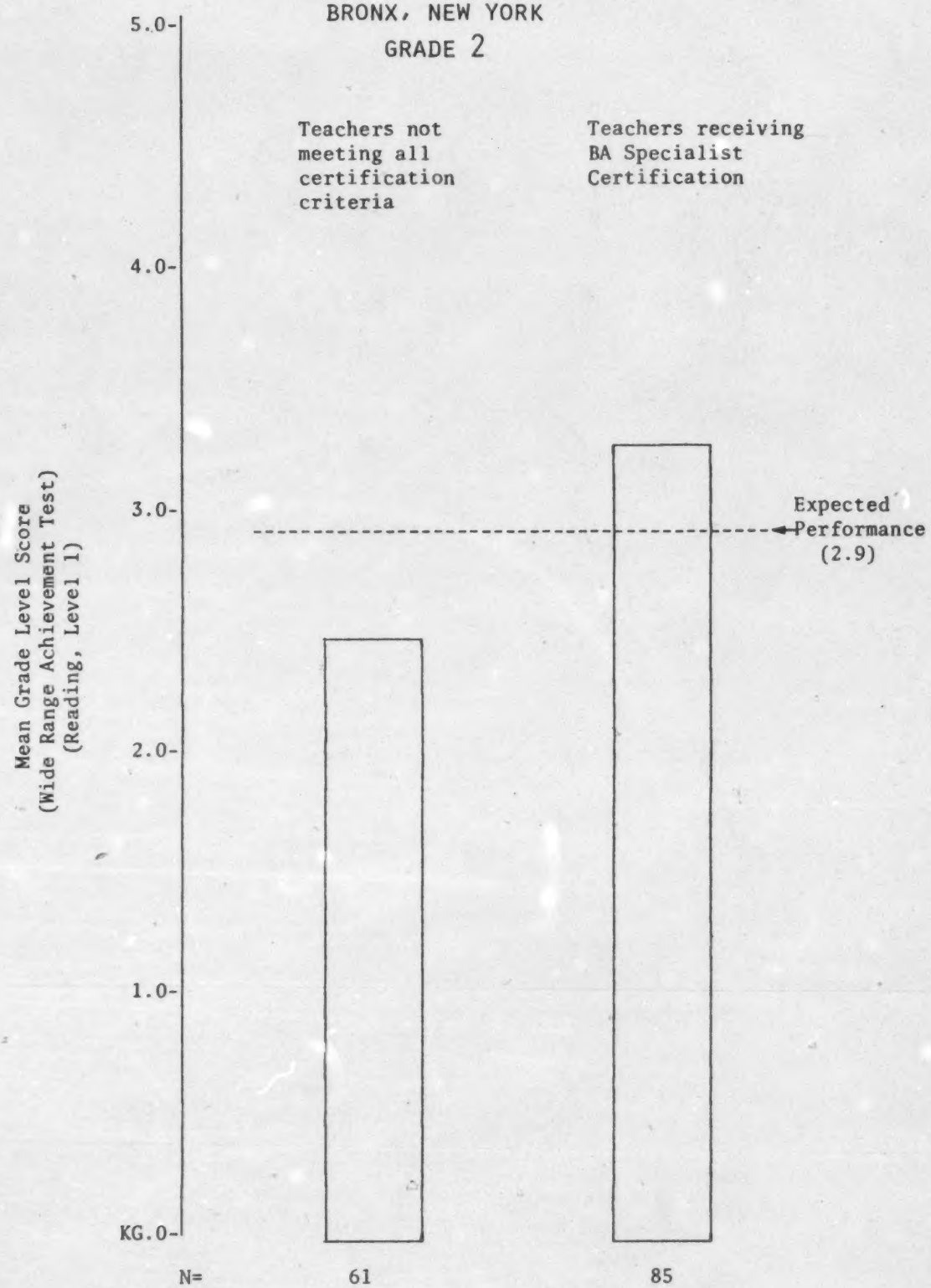

Figure 8

SPRING, 1975 POSTTESTING

BRONX, NEW YORK

GRADE 3

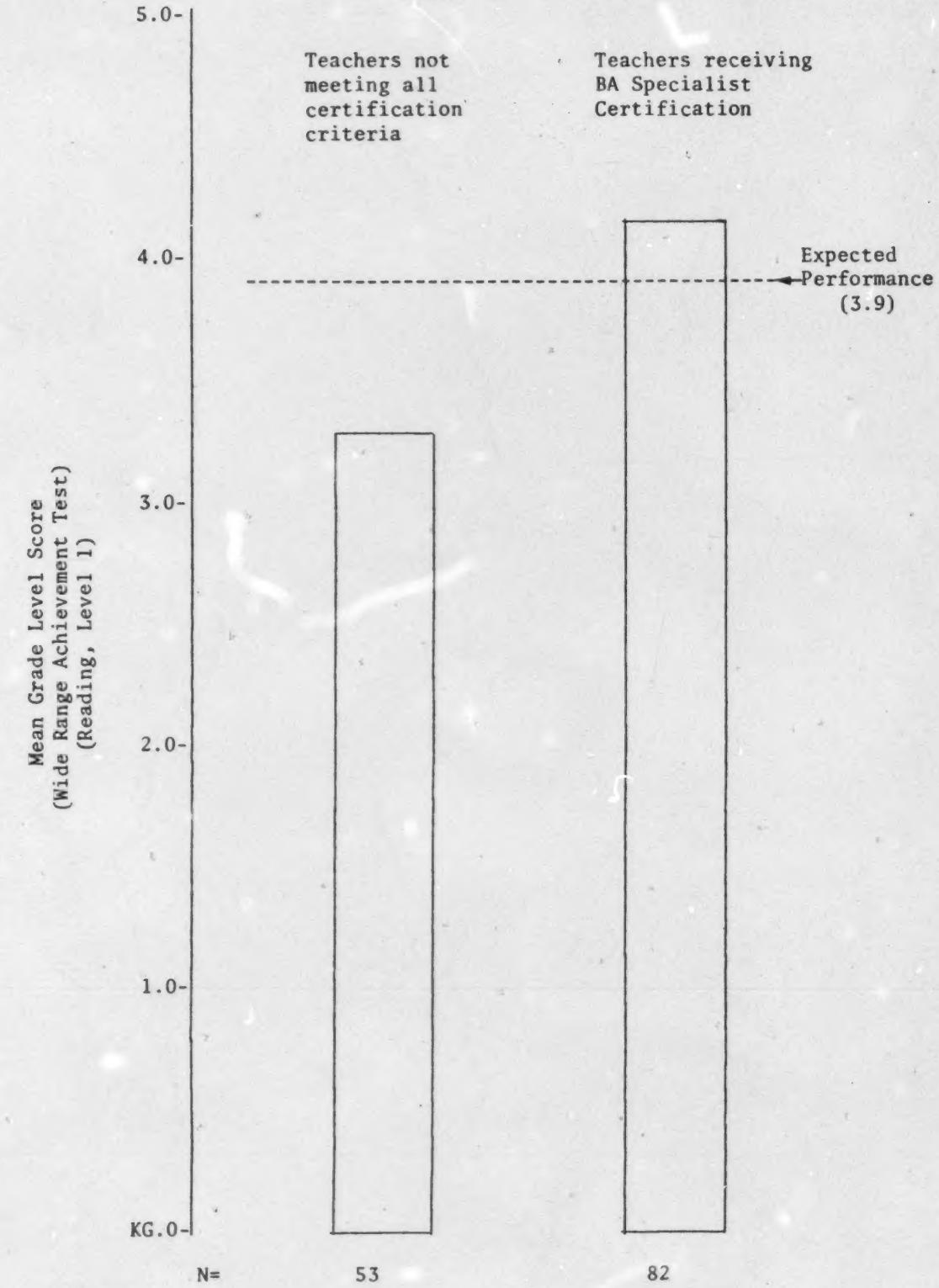

Figure 9

MEAN RATING BY TEACHERS AND AIDES

ON 7-POINT SCALE

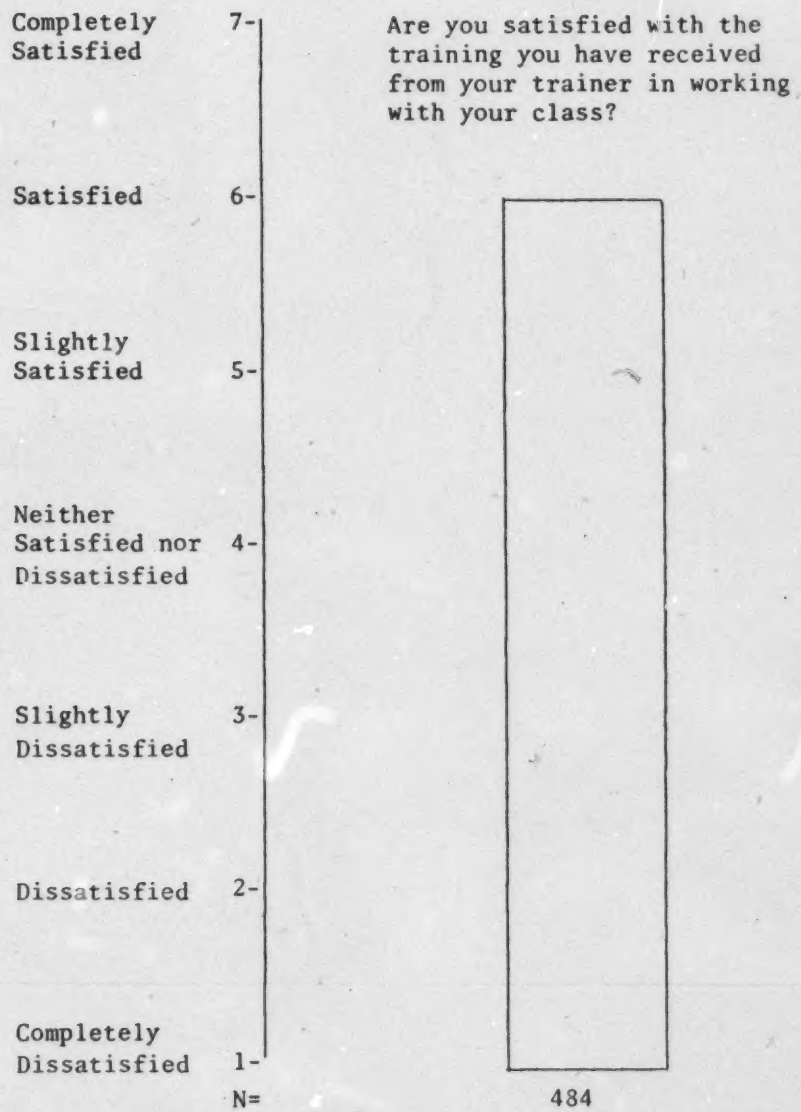

Figure 10

SATISFACTION WITH SPONSOR'S SERVICES

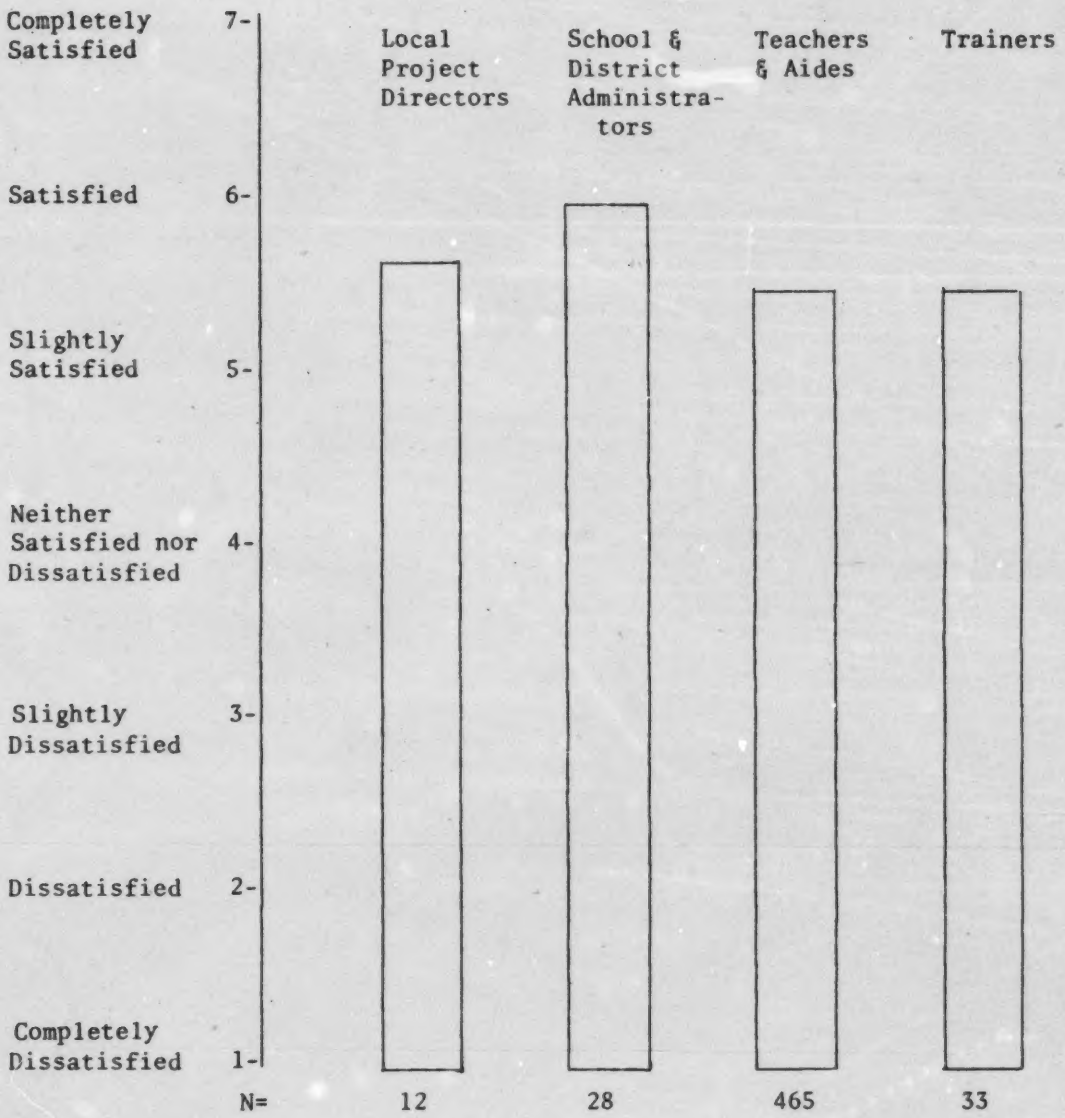

Figure 11

ACCEPTABILITY OF BEHAVIOR ANALYSIS CLASSROOM METHODS